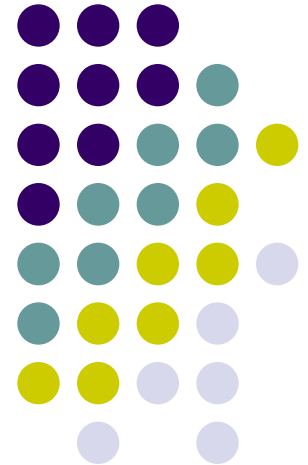
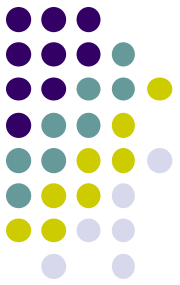


Reactive N monitoring in RMNP and NE Colorado November 2014 status update

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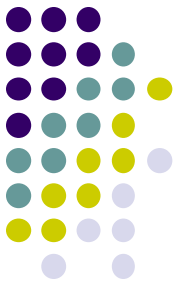


Monitoring Objectives



- NE Colorado
 - Monitor and track changes in ammonia concentration in the Front Range/NE CO
 - Help separate contributions from agriculture and other activities to Front Range/NE CO ammonia
- Rocky Mountain NP
 - Monitor and track changes in total reactive N deposition at RMNP
 - Apportion total deposited N to oxidized (HNO_3 , NO_3^-), reduced (NH_3 , NH_4^+) and organic N compounds
 - Support apportionment of contributions of source regions and source sectors to N deposition

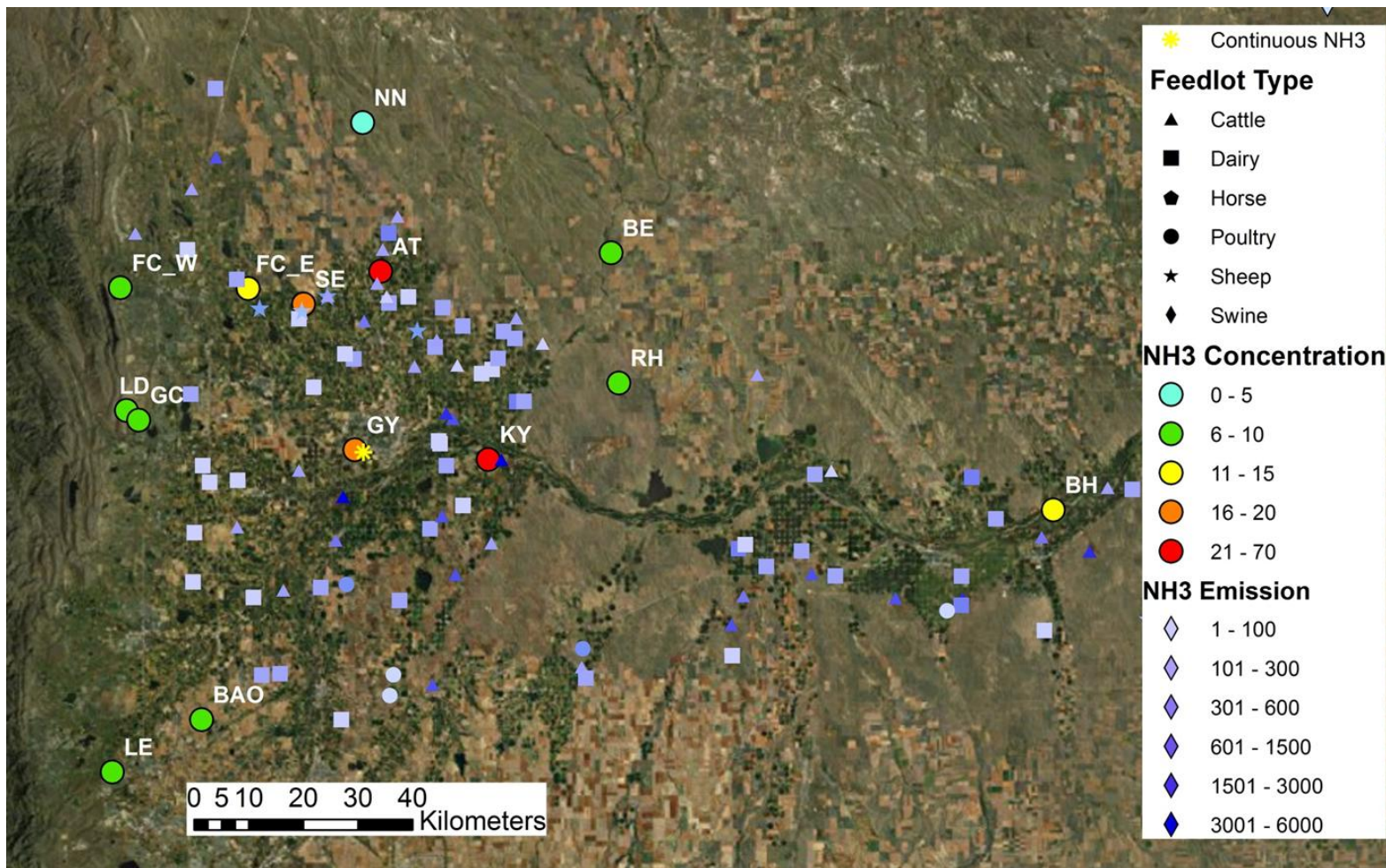
Reactive N monitoring status



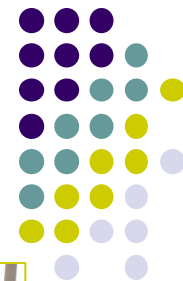
- Ammonia in NE Colorado (mid-March – mid-Oct)
 - NE CO passive NH_3 weekly monitoring network (funded 2014+ by CSU Ag Expt. Station/USDA)
 - High time resolution (~minutes) NH_3 monitor to examine concentration vs. wind direction
 - Site operated in Greeley in 2014
 - 2nd site planned west of Loveland
- Oxidized and reduced nitrogen gases, particles, and wet deposition in RMNP (mid-March – mid-Oct)
 - 24 hr samples of gaseous ammonia and nitric acid and fine particle ammonium and nitrate (funded 2014/15 by NPS)
 - ~48 hr wet deposition samples of ammonium, nitrate and organic nitrogen (funded 2014/15 by NPS)
 - Continuous measurement option (EPA proposal pending)

NE Colorado passive ammonia

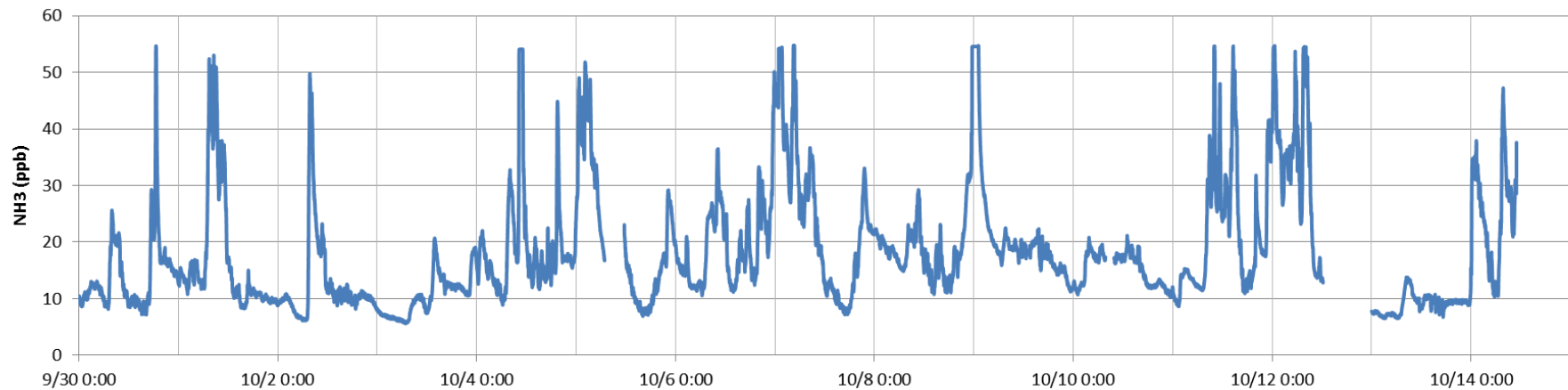
Summertime average NH_3 concentrations (ppbv)



Greeley 2014 ammonia monitoring



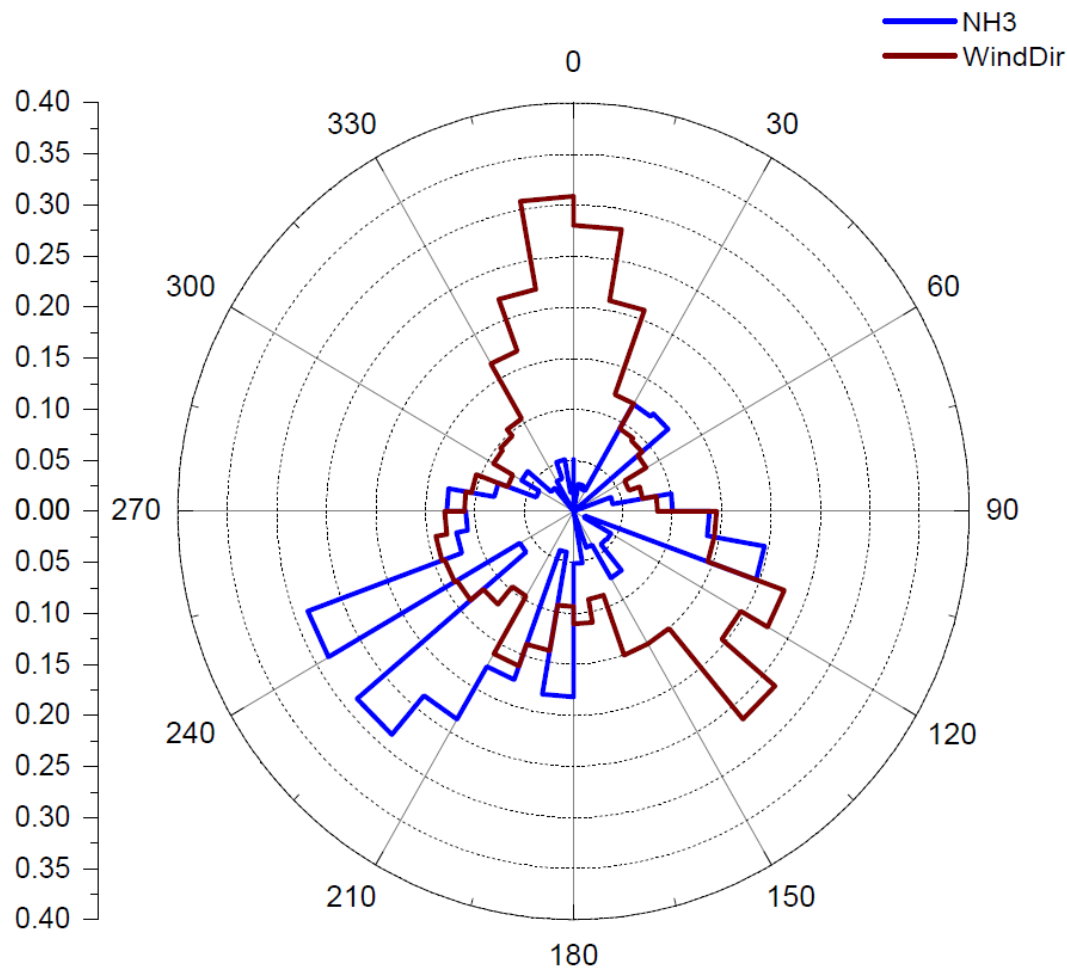
- High time resolution measurements at CDPHE Greeley shelter from end of July through mid-October
- 2015 measurements will run mid-Mar through mid-Oct

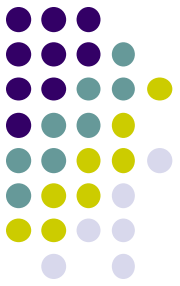


Greeley 2014 ammonia monitoring



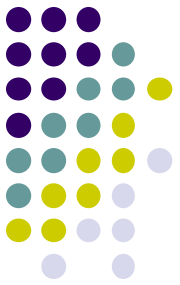
- Initial look at distribution of local winds and highest (90th percentile) ammonia concentrations





West Loveland monitoring plans

- Site selection underway
 - Shelter options investigated
- Funds received from CDPHE for ammonia monitor and met station
- 2015 monitoring funds pending from NRCS



NE Colorado funding status

- Greeley equipment (CDPHE) and monitoring (EPA) covered for 2014 and 2015
- West Loveland equipment (CDPHE) and monitoring (NRCS)
 - TBD site costs
- Additional funding needed for NE Colorado monitoring beyond 2015
 - Monitoring budget ~\$60K/yr
 - CDPHE committed \$5K/yr
 - West Greeley Conservation District \$5K/yr
 - NRCS planning support beyond 2015
 - Additional producer funding needed (Match to NRCS)
 - can make (tax deductible) contribution to CSU

